

USAWC STRATEGY RESEARCH PROJECT

TRANSFORMING INITIAL ENTRY TRAINING TO PRODUCE THE OBJECTIVE FORCE SOLDIER

by

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ABSTRACT

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Transformation of the US Army to the Objective Force generates the requirement to transform Army training to produce the Objective Force Soldier (OFS). The OFS will be different from today's legacy soldier, and will need a different set of knowledge, skills and abilities. The requirement to "see first, understand first, act first, and finish decisively," implies not only greater knowledge, but also a measure of wisdom normally equated with more senior officers (noncommissioned as well as commissioned). Today's training base, in particular, Initial Entry Training (IET) produces structured learners who perform well in the legacy force, but lack the knowledge and wisdom to be able to perform satisfactorily in the OF. This paper addresses incorporation of underused and unused adult learning theory to transform IET to produce adaptive learners rather than structured learners. Of the many adult learning theories that exist, *Situated Learning* is the learning model of choice that if adopted can speed the transition of soldiers from today's structured learner to the OF's adaptive learner. Within *Situated Learning*, the concept of conducting IET under a Cohort model is also explored.

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TRANSFORMING INITIAL ENTRY TRAINING TO PRODUCE THE OBJECTIVE FORCE SOLDIER

Wisdom involves sound judgment and the ability to apply what has been acquired mentally to the conduct of one's affairs.

—The American Heritage Dictionary

The US Army's initial entry training (IET) has served the nation well for many years, however, as the Army transforms to the Objective Force (OF), so too must IET transform to produce soldiers for the OF. While much has been written on developing systems of systems for the OF, the focus of these writings has been on equipment. Little has been written on transforming the training that will produce the soldiers - the key system in this force. This paper addresses that shortcoming during the initial entry phase of the OF soldier's training.

When one strips away the hardware from the OF, one can discern the OF is built on a foundation of knowledge and wisdom. "See first, understand first, act first," requires a quantum leap in the real-time knowledge of the enemy, friendly forces, and the ability to apply that knowledge using sound judgment. Full spectrum operations with rapid deployment timelines require soldiers with greater knowledge of operations, from humanitarian assistance to major theater war than that required of the legacy force soldier. Dispersed operations will require soldiers who use sound judgment in applying that knowledge. As will be shown, transforming soldiers from today's structured learners to adaptive learners will be the key that enables the OF Soldier (OFS) to develop the knowledge and wisdom required to operate in the OF environment. This paper addresses how the transformation to adaptive learner can be initiated during IET by better incorporation of Adult Learning Theories. Adult Learning Theory, in particular, Situated Learning, coupled with new OF manning models leads one to conclude that a Cohort IET model may be more suitable than today's IET model in developing adaptive learners for the OFS.

The first step in this process is to define "adaptive learner." In order to build the case for transforming IET, those aspects of the OF that clearly show how different the OF is compared to today's legacy force are summarized. Next, is a review of the work to date of the Fort Jackson IET Strategy Review Task Force that demonstrates how different the OFS is compared to today's soldier. Within this work is the need to transition from a structured learner to an adaptive learner. Combined, these sections provide the motivation to change IET. Next, is a review of the purpose of IET and today's IET model, showing how today's IET model produces structured learners. The subsequent section provides a summary of adult learning

theories/models, in particular the four main learning orientations, with examples given of current learning theories in use in IET. Immediately following is a small section on adult learning styles that sets the stage for suggestions on producing adaptive learners. The paragraphs that follow are devoted to adult learning theories and models, implications, and how they can be used to transform IET to produce adaptive learners, ready to take their place as soldiers in the OF. The recommendation to adopt a Cohort method of IET is a direct outcome of this analysis. The final sections of the paper are devoted to conclusions and recommendations.

ADAPTIVE LEARNER

Before proceeding, it is important to establish a common understanding of the term, adaptive learner. The American Heritage Dictionary defines adaptive and adaptation as follows:

Adaptive. “Tending toward, fit for, or having a capacity for adaptation.”¹ **Adaptation:** “2. Anything that is changed or changes so as to become suitable to a new or special use or situation 5. Change in behavior of an individual or group in adjustment to new or modified cultural surroundings.”² Therefore, an **Adaptive Learner** is one who modifies his or her learning, based on new or modified surroundings, so it becomes suitable to a new or special use or situation. Of note, this definition encompasses an increase in knowledge, and the development of wisdom. As will be shown later, a principle focus for current IET is an increase in knowledge only.

SUMMARY OF OBJECTIVE FORCE CAPABILITIES, MOTIVATIONS FOR CHANGING IET

Some may ask, why transform IET? They might argue all that is needed are a few improvements. Make those changes and the noncommissioned officers (NCOs) in the OF units will do the rest. Others argue the transformation of IET is long overdue. In order to demonstrate the need to transform IET, one must look at the differences between today's Army and the OF. A cursory examination of The Army Vision and the OF White Paper clearly shows deployment timelines are significantly different. The majority of current combat forces require a significant train-up period prior to deployment for operations other than war. The units from the 1st Armored Division in Germany underwent an abbreviated three to four-month train-up at Grafenwöhr, Hohenfels, and home station prior to deploying to Bosnia Herzegovina in 1995 and 1996 to implement the Dayton Peace Accords. The battalions that deployed to the Former Yugoslavian Republic of Macedonia (Task Force Able Sentry) to perform the UN Peacekeeping operation underwent a 5-month train-up. Objective Force units must be “full spectrum” capable, with a brigade combat team on the ground, mission-ready, “anywhere in the world” 96 hours after lift off. In similar fashion, a division can be on the ground mission-ready in 120 hours, and

five divisions can follow within 30 days.³ In essence, all OF operational units will need to be at a level of readiness common only to the most elite units today. “The spectrum of likely operations describes a need for land forces in joint, combined, and multinational formations for a variety of missions extending from humanitarian assistance and disaster relief to peacekeeping and peacemaking to major theater wars, . . .”⁴ OF units must be prepared for full spectrum operations, which means they will have a broader mission set than even the elite units, such as the Rangers have today. Broader mission sets, with shorter deployment timelines means greater knowledge needs among the soldiers.

A third significant difference between legacy and the OF is the threat that OF units will face. The threat has changed. One needs to look no further than September 11, 2001 to understand this. Current forces were designed to fight “cold war” foes. Legacy forces are primarily “threat based,” designed to fight and win Major Theater Wars (MTWs). Therefore, fighting and winning MTWs has been the primary training focus for legacy forces. This of course makes sense, as it is the one area where our military cannot fail. The professionalism of the legacy force allows it to adapt (with the proper training) to missions in Military Operations other than War (MOOTW). However, there is a time cost associated with developing the requisite knowledge base prior to deploying to MOOTW missions, plus, there is always the need to retrain to the MTW mission upon completion of the MOOTW.

Objective Force units will be capability based rather than purely threat based. They will need to be more “responsive, deployable, agile, versatile, lethal, survivable, and sustainable.”⁵ “We will be trained and ready to do anything the American People ask us to do, and we will do it better, faster, and more affordably.”⁶ The OFS has to be prepared to deploy on short notice, to locations throughout the world, to engage in the full spectrum of missions, from humanitarian assistance, Smaller Scale Contingencies, to MTW. In meetings with senior members of the Department of the Army Staff, the concept of tiered readiness, to include filling brigade-sized units as a Cohort, is being explored as the primary method to enable units to develop the requisite capabilities for full spectrum operations. However, tiered readiness and Cohort training are only part of the solution. As noted above, full spectrum, capability-based operations will require soldiers with a greater knowledge base. “Trained and ready” in a manner that is “better, faster and more affordable” implies that soldiers need not only greater knowledge, but they will also need to attain that knowledge quicker than today, and they will be expected to apply that knowledge in a greater variety of situations.

The OF will operate differently than today’s force. From the OF White paper, the OF will operate in a manner that enables it to “see first, understand first, act first, and finish decisively.”⁷

The force will operate in a dispersed manner, with limited logistics support for the first 72 hours of an operation. This again shows the OF will be much more knowledge and wisdom-based than the current force. “See first, understand first, act first” all imply greater knowledge of the enemy and ourselves than today. But, it implies even more than that. “See first, understand first,” and ability to apply that understanding in the conduct of one’s affairs (act first to finish decisively) describes an OFS who displays wisdom.

Limited logistics support implies soldiers will have to be multifunctional, able to perform roles that previously may have been done by two or more soldiers (e.g. driver, mechanic, and weapons system operator). We recruit top quality personnel for today’s force, therefore, increased knowledge will not necessarily come from “smarter” soldiers. Also, anyone familiar with Army training would be hard pressed to find anything in the training model that attempts to develop wisdom in soldiers, especially at the junior level. Wisdom is something generally associated with senior officers (commissioned, noncommissioned and warrant). Developing wisdom in the OFS during the course of an initial enlistment cannot be done with today’s training model. Training methods will have to change. “Because the nature of work is changing so radically and rapidly, a paradigm shift from a training to a learning emphasis is essential so that people are equipped to deal with new, unspecified challenges.”⁸ With the rapid change in technology, OF soldiers will need to be able to adapt to these changes. This drives a requirement for not only adaptive learners, but for life-long learners. Legacy technology, legacy-training methods, and legacy doctrine fall short of enabling operations in this manner.

One final aspect of the OF that hasn’t been explored in any literature has to do with the Theory of Chaos. A brief introduction to Chaos will be necessary in order to show how this applies to the OF and therefore, why developing OF Soldiers who are adaptive learners is so critical.

Chaos is the study of “chaordic” systems. “A *chaordic* system is a complex and dynamical arrangement of connections between elements forming a unified whole, the behavior of which is simultaneously both unpredictable (*cha*-otic) and patterned (*ord*-erly).”⁹ Put into laymen’s terms: “1) *Chaos* is *the* science of complex, dynamical, non-linear, co-creative, far-from-equilibrium systems, and 2) organizations are complex, dynamical, non-linear, co-creative, far-from-equilibrium systems, *Chaos* is nothing less than *the* science of organization . . .”¹⁰

All organizations, including the OF and any threat in the current and future operating environment, are chaordic. Of the five principles of Chaos Theory (consciousness, connectivity, indeterminacy, emergence, and dissipation), indeterminacy further supports the need to develop the OFS as an adaptive learner. Indeterminacy is based on the precept that “The chaordic

system is so dynamically complex and highly sensitive to initial conditions that any link between cause and effect is necessarily obscure rendering its future unknowable in advance.”¹ The action guideline for this principle is: “Plan if you must, but plan for surprise.”² Success comes not to the one with the best initial plan, but to the one who can best adapt to the new direction taken as a result of the execution of the initial plan. Had Clausewitz known about Chaos, perhaps he would have used that term, rather than “friction.”³

We do not know today how the OF will look tomorrow. The future combat system is not even on the drawing board. We believe a key to the OF will be net-centric operations linking systems of systems (an additional chaordic organization within the OF). One of the key premises behind the OF is the belief that once we “see first, understand first, and act first,” “finish decisively” will follow. Chaos theory tells us the results of our actions will differ from our plan as the initial conditions will change between the time we decide to act, and when we actually act. Additionally, the complexity of the system prevents us from being able to discern all variables and initial conditions. One must also keep in mind the enemy gets a vote. In other words, the action one believed would finish the enemy in a decisive manner may not have that effect. The ability of the OFS to adapt faster than the enemy will be key to ensuring a favorable outcome. This further reinforces the notion the Army must be a learning organization and OF soldiers must be adaptive learners.

The thrust of the above leads one to conclude the OF requires a soldier who is more capable than the legacy soldier of today. The OF needs a soldier who has greater knowledge and is able to use that knowledge rapidly to defeat any foe. However, mere increase in knowledge isn’t enough. With rapid advances in technology, there will be a need for equally rapid advances in learning how to use new technology. Also, as technology increases knowledge about friend and foe, applying sound judgment in using this knowledge (wisdom) will challenge the OFS. Incremental additions to current knowledge (our present training model) cannot maintain the pace. As technology changes, the OFS has to adapt. As the threat changes, the OFS has to adapt. As the mission changes, the OFS has to adapt. The unintended consequences of Chaos (“friction”) will force the OFS to adapt. In order to become full spectrum dominant, the OFS has to adapt. In order to ensure the OFS can adapt, (a key to ensuring success for the OF) the OFS must become both an adaptive, and a life-long learner. Life-long learning spans the soldier’s career, however, the creation of adaptive learners must begin immediately upon entering the Army to ensure the requisite OF capabilities exist in the OFS during the first enlistment.

Before addressing ways to change today's structured learners into adaptive learners, an examination of the purpose of IET and the current training model is in order. This will provide an understanding regarding why today's soldiers are structured learners. Knowing why the Army produces structured learners is the first step in identifying methods of transforming IET to produce adaptive learners.

PURPOSE OF IET

Training and Doctrine Command (TRADOC) Regulation 350-6, Enlisted Initial Entry Training (IET) Policies and Administration defines the goals and objectives (purpose) of IET in sections 1-4 and 1-5. To summarize: the purpose of IET is to transform volunteers into soldiers, who live by the Army values, are tactically and technically competent (technical competence is defined by each TRADOC school), can function as a member of a team, and are immediately able to contribute to the unit's mission in a stressful tactical environment. Army IET is both physically and mentally demanding, providing soldiers with the knowledge, skills and attributes required to function in the Army. These skills can be as simple as the hand salute, or as complicated as repair of the engine for an attack helicopter. Graduation from IET is based on each soldier achieving the Army standard in those tasks required for graduation and the award of a military occupational skill (MOS). A key element in IET is the soldierization process, where each volunteer becomes a disciplined, physically and mentally fit member of a team, imbued with the professional pride, dignity and bearing associated with a soldier in the US Army.¹⁴

A close examination of the IET goals and objectives reveals a great starting point for IET to produce the OFS. The goals and objectives contained in TR 350-6 are specific enough to allow development of an IET model for the current force, but general enough to have enduring qualities that can be applied to build a model for the OF. Of note, the goals and objectives of IET are not designed to produce a finished soldier. Many of the skill level one tasks are best learned in the unit, working with the team that must execute them. Also, the soldierization process continues in the units under the personal supervision of the outstanding noncommissioned officers in our Army. The balancing of tasks that should be unit-trained, versus those that are institutional-trained is a subject of recurring reviews and is beyond the scope of this paper.

TODAY'S INITIAL ENTRY TRAINING MODEL

It is now time to examine the current training model with a view towards showing its shortcomings that produce a structured learner, rather than the adaptive learner needed to man the OF. As stated in the introduction, our IET has served us well for years. It is critical to retain

the good portions of today's IET, while transforming it to produce the OFS. Neither field manual nor regulation states, "IET produces structured learners." However, this concept can be easily inferred by examining the Army's fundamental training doctrine. Army Regulation 350-1, Army Training provides a basis for this examination. First, the Army trains to "develop and maintain those individual and collective skills needed to deploy rapidly and successfully accomplish unit missions."¹⁵ With respect to IET, there is a requirement for a training base "that produces initial entry soldiers who are highly motivated, disciplined, physically hard, and skilled in basic critical tasks." Individual skills not taught in the training base, plus individual sustainment training is performed in units, with the preponderance of individual training taking place in units. All training is to be performed to a common Army standard.¹⁶

While AR 350-1 provides broad general training guidance in the opening chapter, increased structure to training is added throughout the ensuing chapters. This addition of structure culminates in Chapter 5, "The Army Standardization Program." Chapter 5 mandates standardizing certain tasks, drills and procedures (as applicable) across the Army.¹⁷ While standardization of training is important, especially considering the turbulence caused by individual rotations between units, it can have drawbacks. Highly structured training leads to little learner control, which many adult learning theorists today believe leads to structured learners, rather than adaptive learners.

The concept of Army training producing structured learners is further reinforced with the next level of doctrine, Field Manual 25-100, Training the Force. Field Manual 25-100 lists "Use Performance Oriented Training" as one of the "Principles of Training."¹⁸ "Units become proficient in the performance of critical tasks and missions by practicing the tasks and missions. Soldiers learn best by doing, using a hands-on approach."¹⁹ Hands-on, performance oriented training of critical tasks is based on several assumptions. First, one must have knowledge of the threat, which allows the development of doctrine to fight that threat. Once doctrine is developed, the doctrine is broken into executable tactics, techniques and procedures, which can be further subdivided into critical tasks each soldier or crew needs to execute to ensure a successful mission. Programs of Instruction, Training Support Packages, Common Task Manuals, Soldiers Manuals, Crew Drills, How to Fight Manuals are products of this analysis. The common thread in all of these documents is structure. Standard bite-sized elements (tasks) are executed under specified conditions to a specified standard. In essence, the result is structured training, conducted by structured trainers, teaching structured learners.

The complementary manual to FM 25-100 is FM 25-101, Battle Focused Training. "Presentation of training provides soldiers with the specific training objectives (tasks, conditions,

and standards) to be trained, and the evaluation methods to be used. The exact type and amount of information presented prior to performing the task depend on the task and the state of training of the soldiers being trained.”²⁰ Chapter 4 further elaborates on the methods of presentation (lecture, conference and demonstration) with demonstration being the preferred method.²¹ “Performance begins immediately following presentation. It is the hands-on execution of a training task or event. Early performance reinforces newly acquired skills and converts them into usable soldier, leader, and unit skills. For the soldiers being trained, it reinforces the instruction, fixes the Army standard for the task, and builds confidence.”²² The consistent theme of “hands-on training of tasks to an Army standard” is common to these manuals and regulation. This further reinforces the concept of Army training being highly structured by focusing on a single learning style and a preferred method of presentation, both of which are highly structured. The natural outcome of highly structured training is Army soldiers who are structured learners.

Initial Entry Training, as one might imagine, is even more structured than unit training. Unit training is Mission Essential Task List (METL) based, and therefore is subject to change as missions change. Unit training is also a combination of individual and collective training, which is sometimes performed against a live and thinking opposing force. Army IET is based purely on a critical task analysis and a decision by the individual branch schools (confirmed by HQ TRADOC) as to which critical tasks are to be institutional-trained versus unit-trained. Additionally, each school in coordination with field units determines which tasks are critical for a given MOS. The Infantry School is the proponent for The Basic Combat Training (BCT) Program of Instruction (POI) (although other schools are proponents for certain individual tasks) and also specifies which BCT tasks must be included in the One Station Unit Training (OSUT) POIs. Couple this with specified course lengths (9 weeks for BCT, 12-17 weeks for most OSUTs, AITs vary from 5 to 61 weeks) and all the makings of a highly structured training program are in place.

This is not meant to imply that all structure is bad. Given the nature of IET, having an appropriate amount of structure is important. Structure is one of the means of assimilating volunteers, who come from a spectrum of backgrounds, leading to their transformation to soldiers. However, too much structure can inhibit the development of these soldiers, especially, if one is seeking to turn them into adaptive learners. Therefore, it is critical to ensure there remains a proper balance between the current structure of IET and the future structure of a transformed IET that is designed to facilitate the development of adaptive learners. A basic understanding of learning theories is a prerequisite in developing this balance. The following

section will examine adult learning theories and how these theories are either in use or not in use in IET today. In doing so, the section will lay the foundation for recommendations that will include incorporation of underused theories to begin the transition of soldiers in IET from structured learner to adaptive learner.

ADULT LEARNING THEORY AND MODELS

A study of *Adult Learning Theory* reveals a multitude of theories (in my current research, I've encountered over 100) some more helpful than others. A theme that runs through many of the theories of adult learning has to do with *Learning Style Preferences*, which will be discussed in greater detail following this section. Table 1 below is a summary taken from Merriam and Caffarella (1991) describing the four orientations to learning.²³

Aspect	<u>Behaviorist</u>	<u>Cognitivist</u>	<u>Humanist</u>	<u>Social and Situational</u>
Learning theorists	Thorndike, Pavlov, Watson, Guthrie, Hull, Tolman, Skinner	Koffka, Kohler, Lewin, Piaget, Ausubel, Bruner, Gagne	Maslow, Rogers	Bandura, Lave and Wenger, Salomon
View of the learning process	Change in behavior	Internal mental process (including insight, information processing, memory, perception	A personal act to fulfill potential.	Interaction /observation in social contexts. Movement from the periphery to the center of a community of practice
Locus of learning	Stimuli in external environment	Internal cognitive structuring	Affective and cognitive needs	Learning is in relationship between people and environment.
Purpose in education	Produce behavioral change in desired direction	Develop capacity and skills to learn better	Become self-actualized, autonomous	Full participation in communities of practice and utilization of resources
Educator's role	Arranges environment to elicit desired response	Structures content of learning activity	Facilitates development of the whole person	Works to establish communities of practice in which conversation and participation can

				occur.
Manifestations in adult learning	Behavioral objectives	Cognitive development	Andragogy	Socialization
	Competency - based education	Intelligence, learning and memory as	Self-directed learning	Social participation
	Skill development and training	function of age		Associationalism
		Learning how to learn		Conversation

TABLE 1

Behaviorist Theories (B.F. Skinner, et. al) came in vogue in the early 1900s and were the predominant learning theories in use until the early sixties and seventies, when a major paradigm shift occurred. This shift, pioneered through the work of Piaget and Gagne resulted in the Cognitive and *Humanist Theories* of learning. *Experiential Learning Theories* followed in the mid 1980 and 1990s, the chief proponents of these were Mezirow, Freire, Kolb and Rogers. Some of the experiential theories fall into the humanist orientation, while others could be considered a bridge between cognitive, humanist and social/situational. The theories of Kolb, and others were expanded and modified in the 1990s to account for social and situational contexts of the learning experience and the impacts these have on the learning.²⁴

Below is a brief analysis that shows how current IET relies extensively on the *Behaviorist* and *Cognitive* approaches. While these techniques are valuable for engendering desired behaviors and imparting knowledge, their shortcomings inhibit the transition to adaptive learning. In order to show this, a brief summary of the precepts of each of several theorists from the first two categories is given below, with a description of how these theories are applied in IET today. Following that is a summary of the latter two categories, with a description of how only portions of these theories are applied in current IET.

Many are familiar with the *Behaviorist Theory* of Skinner (Operant Conditioning) where there is a Stimulus (S) that elicits a Response (R). Specific responses are engendered by providing or removing rewards. "The theory of B. F. Skinner is based upon the idea that learning is a function of change in overt behavior."²⁵ One can easily see this in IET today. Soldiers are formally introduced to this type of learning during the Reception and Integration phase upon arrival in the IET training company. One can see this method of learning being

used in the barracks, during physical training, in the dining facilities and on the ranges. It is a powerful tool, however, the responses sought (in general) are not responses associated with adaptive learning; rather the trainers in IET are seeking to instill discipline and rapid reaction to orders. They do not want the soldiers to develop alternate courses of action. The cadre is seeking compliance. They are training a particular task, under specified conditions, to a specified standard.

The *Cognitivist* approach to learning appears to be the primary method of training soldiers in IET (and the Army) today. Mager's model serves as a good example of a *Cognitivist* approach. Robert Mager developed the *Criterion Referenced Instruction* (CRI) model as a framework for the design and delivery of training programs. Critical portions of the CRI framework include: goal or task analysis (what is to be learned), performance objectives (outcomes, to include criterion for evaluation), criterion referenced testing (demonstrated learning in terms of knowledge and skills) and the development of learning modules tied to specific objectives.²⁶ Those familiar with TRADOC Regulation 350-70 (TR 350-70), (in particular, Chapters IV and VI) will see a striking similarity between this model and the TRADOC model for training development.²⁷ Within Mager's work is the ability to develop self-paced courses that facilitate rapid learning for those who are capable. Both models (CRI and IET) limit learning to the specific skills and knowledge sets determined to be important by the course designer and are therefore limited in flexibility.

A fundamental of the *Cognitivist* approach is, knowledge can only be processed in small digestible chunks and at a given pace. The Army's approach to training development accounts for this by analyzing a MOS to identify the critical tasks that will be trained prior to awarding that MOS. Tasks are sequenced and the norm is to present the less difficult tasks first, prior to advancing to the more difficult tasks.²⁸ Still, this approach is a "one size fits all" with little room for deviation. It is truly a structured approach, that teaches the required tasks, under given conditions, to a set standard. In general, IET soldiers must learn at the pace of the group to which they are assigned. (TRADOC Regulation 350-6 empowers TRADOC schools to initiate "Fast Track" programs for personnel who are capable of rapid learning. Soldiers participating in "Fast Track" learn additional "required" skills however; the course length remains the same.²⁹)

The *Humanist* approach to learning is based on fulfilling needs or potential. Rogers and Maslow are two of the main theorists, although there are many others. Rogers discounted cognitive learning (such as rote memorization of vocabulary or mathematical tables) and focused on experiential learning, however from the *Humanist* perspective. Roger's view of experiential learning equates learning with personal change and growth. Teachers facilitate

learning by setting a positive learning climate, organizing and providing resources, clarifying why the learner is there, and balancing intellectual and emotional components of learning. Teachers share feelings and thoughts with the learners, but must be careful not to dominate the learning experience.³⁰ Rogers' version of experiential learning is a significant divergence from current Army training, as students control the nature and direction in the process, rather than the instructor or facilitator (as described in TR 350-70, App. H).³¹ In Army training, the person conducting the training session is in charge. With Rogers, the student is in charge. Experiential learning confronts practical, social, personal or research problems, with self-evaluation being the method of determining progress or success.³²

Pure experiential learning, as proposed by Rogers has only limited application in IET today. Anyone familiar with IET (especially during BCT) will agree facilitation as defined by Rogers is only partially executed in IET. The IET learning climate is often positive, however, there are also periods when stress is induced where IET soldiers perceive the climate to be more negative (this is especially true in the initial weeks of both BCT and AIT). In most instances, the intellectual components of learning are preeminent (compared to the emotional) and the drill sergeants clearly dominate the learning experience. Instructors in AIT are perhaps less dominant, however, IET soldiers have no control over their learning experience. There are POIs, TSPs and Student Learning Plans that guide the entire training cycle. The training path, every block of instruction, and every hour of every training day is mapped out for the soldier without any input from the soldier. However, the most important reason that pure experiential learning has limited application in IET is due to the level of experience of the new IET soldiers. The experience level of the new IET soldier is so limited, the soldier is incapable of exerting the level of control required to guide the learning experience.

The final learning orientation to be examined is known as *Situated or Social Learning Theory*. This theory is built upon four major premises. First, learning takes place in the course of everyday situations. Rather than setting up an austere classroom environment, the student is placed into an environment that closely replicates the environment in which the student will work. Second, situationally acquired knowledge transfers only to similar situations. Third, while typical knowledge (declarative and procedural) is important, *Situated Learning* transcends this by acknowledging that learning is a social process "encompassing ways of thinking, perceiving, problem solving, and interacting." Fourth, learning is not a sterile activity, "but exists in robust complex social environments made up of actors, actions and situations."³³

There is some overlap here between the *Situated Experientialists* and the *Situated Cognitivists*. The concept of transferability of learning is very similar. *Situated Cognition* tells us

“learning activities need to be “situated” as closely as possible to practice they represent in order for learning transfer to become a reality. . . . The more authentic the activity and the assessment of that activity, the more likely the person will be able to display that learning in actual practice.”³⁴ While both models view knowledge transfer as situationally dependent, *Situated Learning Theories* posit that ways of thinking, perceiving, etc., can transcend situations. This is important when attempting to develop adaptive learners. Recall, the OFS needs both knowledge and wisdom in order to be successful. While knowledge may transfer situationally, wisdom (ways of thinking, etc.) can enable the OFS to apply knowledge to a new situation (adaptive learning).

Elements of the first two premises of *Situated Learning* can be found in IET today. Training ways of thinking, perceiving, and problem solving are also present, but limited in IET today. The focus of training to task, condition, and standard is on developing declarative and procedural knowledge. Essentially, current IET trains soldiers what to think, not how to think. While the fourth premise seems obvious, it is not something that appears to have widespread formal application during the conduct of training in IET today. During BCT and OSUT, the preponderance of instruction is done in squad, platoon and company groupings. The tasks trained are individual tasks, often done in groups due to equipment and instructor limitations. There are exceptions, such as the conditioning obstacle course, which is conducted three times during BCT and OSUT (the first is an individual event, with subsequent iterations being run as a team, with increased challenges) and the teamwork development course, however, these exceptions account for portions of four days of training during a nine-week cycle. In general, the concept of learning being a social process is absent from the “task, condition, standard” approach to individual training.

Situated Learning and the current IET model can be further contrasted using the following examples. In IET today, information is presented to soldiers in discrete packages (task, condition, standard) that is organized by instructors. In *Situated Learning*, “content is inherent in the doing of the task and not separated from the noise, confusion and group interactions in real work environments.”³⁵ While we often try to replicate the sights and sounds in certain training events in IET, often, the individual task that is to be performed is separated from the noise, confusion, etc. Soldiers learn to shoot on a range where no one shoots back at the soldier, there is no incoming artillery (or even replication of the effects) and the targets always pop up in the same locations and at the same distances. In *Situated Learning*, learning is dilemma driven as opposed to IET where learning is primarily content driven. Finally, both IET and *Situated Learning* are designed to challenge the intellectual and psychomotor skills, however, *Situated*

Learning provides a vehicle that better transfers that learning to the work environment as the learning takes place in the work environment (or a very close approximation), rather than in a classroom, or range facility.³⁶

As mentioned at the beginning of this section, a common theme in the study of learning theories today is the concept of *Learning Style Preferences*. Prior to addressing how some underutilized learning theories may be used to transform IET, a brief summary of learning styles is needed, as that will lay the foundation for transformation recommendations. The importance of accounting for learning styles can be discerned from the work of Ronald and Serbrenia Sims. They note that the individual learner is the learning unit. However, most instruction takes place in classrooms in large groups. This sets up a dilemma, where teaching approaches are at the class (macro) level, but learning has to take place at the individual (micro) level.³⁷ There appears to be a mismatch between methods of instruction and the ability to account for preferred styles of learning. One finds varying class sizes in IET today, however; teaching is still at the macro level. Focusing on the individual learner implies one must account for individual preferences in learning. These individual preferences are known as learning styles.

ADULT LEARNING STYLES

Kolb and Fry developed a theory of learning styles in conjunction with Kolb's work on experiential learning. They categorized learners into four styles, *converger* (strong in practical application of ideas); *diverger* (strong in imaginative ability); *assimilator* (strong ability to create theoretical models) and *accommodator* (greatest strength is doing things).³⁸ Gregorc and Butler developed a model of two perceptual qualities (concrete and abstract) and two ordering abilities (sequential and random). The Gregorc model combines the perceptual and ordering, thereby yielding four styles of learning, concrete sequential, concrete random, abstract sequential and abstract random.³⁹ This model is similar to, but simpler to understand than Kolb's. Under the *Multiple Intelligences* approach, there are seven ways of knowing and therefore, seven intelligences: body/kinesthetic, interpersonal, intrapersonal, logical/mathematical, music/rhythmic, verbal/linguistic and visual/spatial.⁴⁰ (Most academic endeavors concentrate on developing the logical and verbal intelligences.) The common thread linking these styles is the thesis that learners have preferred learning styles that must be accommodated when designing courses in order to maximize learning.

Hosts of learning style inventories exist and can be used to determine soldier learning preferences. Some believe these preferences should be used to select personnel for specific jobs. Kolb on the other hand, disagrees. In his theory, one must learn in a spiral manner, using

all four learning styles in order for learning to occur.⁴¹ Testing is done to determine preferences as a means toward improving the learning experience of the students. Therefore, Kolb would argue courses should be designed to accommodate various learning styles to ensure true learning takes place, rather than using the tests to place prospective students into a course that “fits” their preferred style. Testing to “fit” yields structured learners, while testing to “accommodate” yields adaptive learners.

If courses are taught that are biased toward one style of learning (as in IET today), learners will become one-dimensional. They will not develop into adaptive learners. The “task, condition, standard” method of instruction, coupled with performance-oriented, hands-on training places soldiers into Kolb’s *accommodator* category. This limits the development of the other three aspects (practical application, imagination, able to create theories) that are important aspects of the OFS. In order to ensure soldiers become adaptive learners, courses must be designed that enhance the non-preferred learning styles, without unduly suppressing the preferred style. As a soldier makes the transition from structured learner to adaptive learner, the soldier becomes comfortable with multiple learning styles. There are implications here. First, the training cadre (officer and NCO) needs to understand the concept of learning styles. This is not something that is being addressed in cadre training programs today. Second, mandatory evaluation of soldiers for learning style preferences would have to be added. There is a cost associated with this. Third, training cadre and training developers will require additional training to ensure they incorporate techniques in their instruction that account for various learning styles.

Accounting for differing learning styles provides a means to improve IET, however; incorporation of learning styles into the current IET model is insufficient by itself to transform IET to produce adaptive learners. Research into learning models and theories indicates there are several theories (either not in use, or underused) that if applied to IET, could transform IET to produce adaptive learners. The next section provides a description of these theories and how their application can enhance or transform IET.

PRODUCING ADAPTIVE LEARNERS

As noted in AR 350-1, the preponderance of individual training takes place in units. Soldiers learn the baseline combat and technical skills in IET that will be further reinforced and built upon in the unit. Therefore, transformation of IET training must be complimentary with a transformation of training in units. While transformation of unit training is beyond the scope of this paper, this linkage cannot be ignored. Creating adaptive learners isn’t an overnight

process. The transition from structured learner to adaptive learner needs to start in IET, and in most cases, this transformation will continue in units. Therefore, this section examines those models and learning styles that appear to offer the best chance of starting the transition to adaptive learner in IET.

While most *Behaviorist* models are associated with producing structured learners, there is a *Behaviorist* theory that could bear fruit in developing adaptive learners, Irving Maltzman's *Originality Theory*. Maltzman proposed three methods for increasing original response, but primarily studied one, that being "evok[ing] uncommon responses as textual responses."⁴² His other methods, "(1) present an uncommon stimulus situation for which conventional responses may not be readily available, (2) evoke different responses to the same situation," also appear to fit in with the theory of Chaos and adaptive learning.⁴³ When learners are placed in situations where they must try to solve problems when a ready solution isn't available, they must draw upon prior knowledge and adapt it to the current situation. Recalling from Chaos theory, we cannot be certain of future outcomes, we can only be certain that our actions will cause change. This change may call for an original response. Therefore, developing training programs that enhance originality could better prepare the OFS for the future operating environment. Also, when learners are forced to develop uncommon responses, they must adapt their knowledge to the current situation. This is both a display of wisdom and a step in the direction to becoming an adaptive learner.

One might argue *Behaviorism* (with the notable exception of Maltzman) has little utility in developing adaptive learners. However, one could also argue some important functions can only be trained through *Behaviorist* techniques and these functions contribute to the abilities of adaptive learners. For instance, when a teenager plays video or computer games, many of his or her moves with the controller pad seem automatic. These are representative of conditioned responses. The conditioned responses enable the player to move to ever higher levels of difficulty in the game that would not be achievable had the player not mastered the aforementioned sequences with the controller. Similarly, throwing a grenade, firing a rifle, or pushing a button (that shoots a missile or rocket) are also conditioned responses. Given the need for a force that "sees first" and "acts first," sometimes, the conditioned response can be the difference between "acting first" and surviving or acting second and dying.

The future combat system is still an unknown, however, the probability is nearly certain that it will involve soldiers initiating sequences that result in mass or energy being directed at an enemy. The training of these skills will begin in IET, and as noted above, the *Behaviorist Theories* of learning will continue to play an important role in the development of certain skills

for the OFS, however, in and of themselves, even with the addition of *Originality Theory*, they fall short of producing the adaptive learners required in the OF.

One *Cognitivist* approach that is of potential use in transforming structured learners to adaptive learners is the concept of *Lateral Thinking* by Edward DeBono. *Lateral Thinking* involves the generation of novel solutions to problems. Essentially, rather than approaching problems with the tried and true methodology, DeBono believes one has to approach problems from a different perspective. In essence, hierarchical organizations stifle problem solving by rigid thinking. There are certain dominant ideas that polarize perception of a problem. These ideas hinder seeing a novel solution. To overcome this, one must recognize these dominant ideas, relax the rigid control of thinking, and search for different ways of looking at things. Often, low-probability ideas, ones that most people would be hesitant to offer in many organizations, provide the sought-after solution.⁴⁴ Many today might term this, “thinking out of the box.” Regardless of the term, it would be rare to find DeBono’s theory in use in individual training.

Transforming Army training through application of DeBono’s work has significant implications, especially in IET. First, as noted earlier, the Army method of training takes us toward one “right” way of doing business, the Army standard. *Lateral Thinking* looks for different approaches to solve a problem. Second, in IET, the training cadre isn’t looking for novel ways of solving problems. They want the IET soldiers to learn, using tried and true methods (i.e., methods with which the cadre are familiar). Immediate and complete response to orders is the preference. Third, drill sergeants and instructors believe rigid control of thinking is good, as they have to teach a designated task, under specified conditions, to an Army standard. The training cadre does not want soldiers deviating from the POI or TSP. Fourth, in training or in war, does the Army want soldiers regularly attempting solutions that have a low probability of success? While there are instances throughout history where the low probability solution turned the tide of battle, there are even more instances where it resulted in disaster. Perhaps most difficult will be changing the concept of a single, best “Army” answer to every problem (rigid thinking brought about by dominant ideas).

A personal example of *Lateral Thinking* dates back to Ranger School in 1979. While executing platoon level operations in Florida, the school standard for crossing linear danger areas (e.g., roads) required the platoon to maintain the original squad order-of-march after crossing the danger area. This was an extremely slow process, especially when crossing multiple danger areas causing a loss of momentum. We developed a technique (which was adopted by the school as the standard and is the standard still today) where the lead squad

secured both sides of the area, the trail squads crossed the danger area in order-of-march. Once the crossing was complete, the former lead squad became the trail squad. Almost no time was lost in crossing, which therefore, increased security as there was no loiter time in the vicinity of the danger area. The Ranger instructors were concerned we would not be able to maintain control of the formation, that we would lose track of who was in the lead and who was in the trail among other concerns. We proved that wasn't the case. In essence, our platoon rejected the rigid thinking of the school solution, took a different viewpoint of the problem of crossing a danger area, tried a "low probability of success" solution, which became the new standard. (This brings up an additional implication of adopting DeBono's model to IET. A mechanism must be added where novel solutions can be shared to become a new standard.)

The concept of *Lateral Thinking* may be alluring as a method to produce adaptive learners, however, putting this into practice in a classroom environment will prove more challenging. Following a prescribed POI and TSP to teach "task, condition, standard" is a challenge given the constant influx of new IET personnel and constraints on time. The level of complexity added by coaxing IET soldiers to seek novel solutions, the difficulty encountered in preparing the TSPs and other training material, and the need to train or retrain cadre will dramatically increase the level of difficulty in both preparation and execution of training. Followed closely behind in difficulty will be changing the mindset of those who provide the training and instruction. These outstanding NCOs (drill sergeants and instructors) are products of the current system. The system worked for them, why change? Having or seeking multiple solutions to problems requires a different training model for drill sergeants and instructors, who are currently trained to teach the Army solution. A possible solution to this final challenge will be offered following a description of *Situated Learning*.

A second *Cognitivist* theory that has merit in transforming IET is J. Bruner's *Constructivist Theory*. While Bruner is listed as a constructivist, he appears to incorporate some portions of experiential learning *à la* Kolb. In particular, Bruner sees learning as an active process where new ideas or concepts are constructed upon current or past knowledge. It is the learner's cognitive structure that enables him to select and transform information, construct hypotheses and make decisions. Bruner refers to this structure as schema or mental models. The structure provides meaning and organization to the person's experiences and allows the individual to draw conclusions or inferences that go beyond the information presented. Instruction is presented in the Socratic method, with open dialog. The students are encouraged to discern the learning principles by themselves while the instructor facilitates the learning by presenting information in an appropriate manner and format based on the learner's current state of

understanding. Similar to Kolb's learning model, the course of instruction is organized in a spiral manner. The concept of spiral organization provides a learning, or experiential foundation upon which the students can continue to build during their study.⁴⁵

An examination of IET shows portions of this theory in use. In particular, the concept of building on or constructing new ideas upon current and previous knowledge is common. However, the Socratic method of learning is rare as is the concept of learner selection and transformation of information, construction of hypotheses and decision-making. The Army's "task, condition, standard" model inhibits this. The ability of a soldier to "go beyond the information given" is also a characteristic of an adaptive learner, and one that isn't encouraged in IET today. These concepts however, are critical if we are to transform soldiers from structured to adaptive learners. Therefore, it may be worthwhile to examine the course content and methods of instruction, especially in the AIT portion of IET to see where expanded development of schema is not only possible, but also desirable.

While the above theories may be helpful in transforming IET to produce adaptive learners, incorporation of them yields modification of IET, rather than true transformation. A better way of transforming IET is through a more complete application of *Experiential Learning* theory. David Kolb's 1984 book on *Experiential Learning* describes a learning cycle where content and complexity of learning are linked in an experiential spiral consisting of *concrete experiences*, *reflective observations*, *abstract conceptualization* and *active experimentation*. The learner has an experience, reflects on the experience, creates abstract theories (generalizations or guides to further action), tests these theories (active experimentation), which results in a new concrete experience. Those theories that pass the concrete experience test become "learned" and are available for future use. Those theories that are not in synch with the new experience call for continued reflection and modification (a new theory or abstract conceptualization) and a return to experimentation and concrete experience. As learning advances, the learning cycle becomes a learning spiral of ever-increasing complexity.⁴⁶ Kolb has both supporters and detractors. Some feel Kolb's work is too simplistic, while others feel it fails to account for the social processes that enhance learning. Many others see Kolb's work as providing the foundation upon which more modern theories have been built. Two popular Kolb-based forms of experiential learning that can provide the basis for transforming Army training (in general) and IET (in particular) are *Action Learning* and *Situated Learning*. Both will be explored below.

Action Learning is a form of experiential learning found in many companies today. Leading-edge companies are turning to *Action Learning* because it "allows participants to use what they learn to tackle priority problems within their companies under actual work

conditions.⁴⁷ *Action Learning* combines critical reflection with reframing (altering assumptions that do not accomplish goals) and unlearning or relearning, essentially “replacing old with new skills until the new ones are automatic.”⁴⁸ This type of learning can be clearly regarded as adaptive learning. The concept of critical reflection and reframing (abstract conceptualization) fall in line with Kolb’s learning model. The solving of problems and the testing of those solutions (active experimentation) result in a concrete experience which proves to the workers they either solved the problem, or they need to start the cycle again.

There is tremendous power to this model. Everyone is involved. All have ownership of the solution and all share in the glory or the blame if the solution does or does not work. Ownership can provide tremendous motivation in seeking solutions. If applied correctly, the opportunity for trying novel solutions (similar to DeBono’s model) will be present. Still, using this model is not without costs. Some of the implications coupled with using this model to transform IET follow below.

First, the quality of simulations and the actual equipment used in IET requires vast improvement. Rather than the Weaponeer, something akin to the Engagement Skills Trainer would be in order. Using 1960’s technology, that doesn’t simulate the effects of terrain, weather, obscurants, a thinking enemy, nor ballistics characteristics of weapons systems will not produce the desired learning outcomes. Further, training on one version of equipment in IET, but operating with a different version of the equipment in an operational unit is counter-productive. This situation exists with SINCGARS radios and Blackhawk helicopters today (among others). Second, there is a need for trained facilitators to assist in developing novel solutions to priority problems. This implies a different training methodology in TRADOC’s instructor training courses and drill sergeant schools, with all the costs associated with such a change.

Third, learning takes place within a scenario-driven event, rather than through a series of specified tasks. In particular, the scenarios are meant to exactly replicate the future work environment. The tasks are an inherent part of the scenario. This will require a higher level of fidelity in scenario development compared to current IET, to include addition of asymmetric approaches. A complete revision of the POIs for BCT, OSUT, and much of AIT is required. This is an expensive and lengthy process, but one that will be needed for portions of OSUT and AIT as we field the FCS regardless of the learning model. Fourth, using *Action Learning* to tackle priority problems under actual work conditions is best replicated in the training base if IET is conducted using a Cohort system. I.e., the leadership under which the soldiers train is the leadership under which they will perform actual missions upon arrival at their first duty station.

Also the soldiers will be learning, solving problems, and developing teamwork with the same soldiers who will perform those missions during actual operations. Should the Army not adopt a Cohort manning model for the OF, adoption of *Action Learning* may be more appropriate in transforming training in operational units, rather than IET. The difficulties of replicating the future work environment, given the mix of IET soldiers and a training cadre, rather than the actual unit cadre, with IET soldiers performing their actual duties may be insurmountable.

Action Learning in many aspects is a subset of *Situated Learning*. As noted earlier, *Situated Learning* is built on four premises (the learning environment replicates the work environment; situationally acquired knowledge transfers only to similar situations; *Situated Learning* engenders ways of thinking, perceiving, problem solving and interacting that transcend mere knowledge; learning takes place in a complex social environment, it is not sterile). But where does the learner fit in? The current training model is instructor centric. In *Situated Learning*, the learner is at the center of the instructional process. The instructional process consists of content, context, community, and participation. Content being defined as the facts and processes of the task. Context, while containing portions of what is known today as “condition” goes beyond this to include “situations, values, beliefs, and environmental cues by which the learner gains and masters content.”⁴⁹ Community is the group (teachers, trainers, co-workers, fellow students, opposing forces, etc.) with which the learner interacts to create meaning, understanding, and ways of thinking within a given situation. Participation, in this context is learners and experts working together in a social organization to solve the problems that arise in everyday circumstances. In essence, under *Situated Learning*, learning is a social process, a give and take or dialogue among experts and students, with students as the focal point, where the learning environment and learning situations closely replicate the work environment.⁵⁰

A more thorough examination of *Situated Learning* demonstrates how this model of learning is more suitable for producing adaptive learners than is the current model. Content in situated learning “emphasizes higher-order thinking process rather than acquisition of facts independent of the real lives of the participants. . . . Application rather than retention becomes the mark of a successful instructional encounter.”⁵¹ This is fully supportive of producing adaptive learners, rather than structured learners. Adaptive learners are able to take what they know, and use sound judgment to develop their next action. Structured learners perform the tasks assigned, often with the hope they will get to use the task at some time in the future. The focus of *Situated Learning* is clearly on application, rather than the learning of a number of seemingly disconnected tasks. The current IET model focuses on learning a series of tasks,

which in the mind of the soldier, may not have immediate application in the future life of that soldier. The higher order thinking processes of *Situated Learning* (as opposed to learning a series of tasks) can be associated with wisdom, rather than mere acquisition of knowledge. As previously noted, one of the key differences between the OFS and the legacy soldier, is the requirement for earlier development of wisdom. Wisdom is directly related to being an adaptive learner.

Context in *Situated Learning* “refers to building an instructional environment sensitive to the tasks learners must complete to be successful in practice.”⁵² In this respect, context is not dissimilar to IET today, however Boud describes context in a manner that provides a distinct difference. Boud sees context as something larger than bringing life events to the classroom. The combination of the social, psychological and material environment in *Situated Learning* is such that the learner not only experiences the learning event, but also is able to experience it from multiple perspectives. Context allows the learner to engage with and intervene in the learning situation.⁵³ While learners in IET are “in the experience” today, they do not get to experience events from multiple perspectives. The degree to which environmental engagement and intervention occurs is also suspect as the training cadre fully controls the learning environment and the learning material. As noted earlier, the “task, condition, standard” approach can often lead to a seemingly disjointed approach to training. Further, the quality of the simulations in IET today lack the ability to replicate the future work environment, making it difficult to truly place the learning in the proper context. The implications that result from this (some of which were noted under *Action Learning* also) will be described in the next section.

The concept of learning in a community of practice also speeds the process of developing adaptive learners. Learners form meaning, reflect upon what is to be learned and interpret the learning through interactions with the learning community. The community allows individuals to gain an understanding of a body of knowledge that is created from the experiences of the participants in the community. Through a joining of practice, analysis and reflection, the learners and the experts share tacit understandings and other subtleties that lead to alternate approaches and solutions.⁵⁴ Currently, the IET community (especially in BCT and OSUT) consists of large platoons of IET soldiers with two to three Drill Sergeants per platoon. In AIT, the soldier-to-instructor ratio is normally better. However, there is little time for reflection and analysis during the course of training. This is due in large part to the nature of our current system of training that focuses on performance of specific critical tasks to a given Army standard. With the exception of a properly run after action review, there is no requirement to reflect. Returning to Kolb, it is only through *critical reflection*, leading to *abstract formulation* of

theories, and *active experimentation*, followed by *concrete experiences* that true learning occurs. Learning in a community of practice, when properly done, will lead to true learning among IET soldiers. This is one of the first steps in transforming structured learners into adaptive learners.

The final *Situated Learning* area to examine in detail is participation. "Participation describes the interchange of ideas, attempts at problem solving, and active engagement of learners with each other and with the materials of instruction."⁵⁵ In essence, without participation, there is no learning. It goes without saying, without learning, the OFS cannot be an adaptive learner. However, participation as listed above, done in the presence of the community of learning helps build learners who have flexibility of thought and a greater knowledge base compared to someone who is more passive. It is the interchange of ideas (*reflection* and *abstract conceptualization*) and the attempts at solving problems (*active experimentation*) that places the learner into Kolb's learning cycle and enables true learning to take place. Also, the active engagement of the learners with each other and with the materials of instruction yields differing viewpoints, which further expands the opportunity for the development of wisdom.

IMPLICATIONS

Implications of adopting *Situated Learning* as a training model for IET are as follows:

1. *Situated Learning* is experiential based, as such, future learning in IET and beyond is dependent on the beginning level of experience of the individual. There will be a requirement to bring all soldiers to a baseline level of experience during or perhaps prior to IET. The Army teaches a course at Lackland Air Force Base designed to do just this for soldiers for whom English is a second language. With advances in technology, there may be a need to expand this to include computer, analytical, and language skills among others. Some possible ways of doing this:

- a. Develop a distance learning training program to be executed during the delayed entry program (DEP) designed to build the needed experience level for the inbound soldiers. This may entail issuing each inbound soldier a laptop (or perhaps a properly equipped personal digital assistant) that could be used to access the program. Some type of rewards system might also need to be added to help motivate the future soldier.
- b. For those not participating in the DEP, there may be a need for the same, or similar program upon arrival at the initial training site.

c. A third option is to build scenarios during IET in such a manner that those who lack the requisite experience to learn at the same pace as the group, can build that experience during the scenarios and catch up to their peers. Should the soldiers be unable to catch up with their peers, an option could exist once the experience is at the requisite level to recycle these soldiers into a subsequent unit where they stand a better chance of moving at the group rate of learning. An alternative here is to acknowledge there will be different rates of learning, and allow each soldier to complete the training at his or her pace, so long as the soldier remains motivated and continues to learn.

d. Regardless of the method, the simulations used to develop the requisite experiential knowledge must be as realistic as possible. This is a key aspect of *Situated Learning*. The simulations cannot be just a series of lectures or reading assignments with test questions. They will need to be interactive (not unlike the Army Game project), exciting, and challenging, with the requisite learning embedded into the program and scenarios.

2. Attempting to bring all OFSs to a common level may engender the need to provide further instruction in common subjects, such as mathematics, English, history, government, and the sciences. We are expecting OFSs to be full spectrum dominant. Particularly for peace operations, this implies a greater understanding of cultures than the typical soldier has today. One could argue, a comprehensive liberal arts education (taught in a *Situated Learning* environment), in addition to what is perceived as “normal” Army training is essential in developing a full spectrum force. The groundwork for this could be laid in IET, with continuation throughout a soldier’s time in the Army. The Army is currently recruiting the college dropout and stop-out market. Personnel with additional college experience may have more maturity and a stronger academic background than those freshly graduated from high school, and may therefore make better OFS candidates. An additional implication here is the Army should continue to look at further expansion into this market.

3. Full spectrum operations anywhere in the world generate a need for foreign language training for all soldiers. Learning a second language increases the adaptability of the OFS.

a. When soldiers deploy to foreign lands, such as Iraq or Afghanistan today, think of the synergy to be gained by having soldiers in the unit who can speak, read, and understand the language, without having to seek an interpreter. IFOR went into Bosnia Herzegovina with a dearth of interpreters. Those who spoke German were of limited help on occasion, as were those who spoke Russian, however, the initial lack of interpreters hindered IFOR’s ability to immediately implement all the provisions of the Dayton Accords.

Perhaps in the future, there will be technical solutions (electronic interpreters), however in the interim, having an imbedded language capability within an OF Unit of Action is of critical importance. An additional benefit of language training is an understanding of different cultures. An understanding of other cultures enables one to see problems and possible solutions from someone else's viewpoint. This can be invaluable whether the unit is operating in a peacekeeping mode, or in combat.

b. While OF units are meant to be rapidly deployable anywhere in the world, it is reasonable to believe there may be some area specialization, as there is with Special Forces units today. Given this assumption, the Army could develop requirements within each unit for soldiers with language training. Each unit would need certain key languages (e.g., Russian, French, Spanish, Chinese, Arabic, Korean). Each soldier within the unit would study one of these languages. At the same time, certain soldiers would learn a second less common language (e.g. Swahili). The goal would be to have within each UA, a measure of proficiency in all the major languages and many of the minor languages. In essence, regardless of where the unit is deployed, the language abilities organic to the UA will allow its soldiers to find and speak a common language with others anywhere in the world. The training should begin in IET. Given the adoption of the *Situated Learning* model, the language training should be imbedded in the training scenarios to the maximum extent possible.

c. A side benefit of learning a foreign language is a better appreciation of other cultures, which as noted above, is important in enabling better performance by the OFS in peace operations.

4. *Situated Learning* acknowledges there are varying rates of learning and embraces the opportunity to allow these people to complete their instruction earlier than those who learn more slowly. Therefore, by incorporating the situated learning model for IET, those who learn faster should be allowed to complete the training more quickly while slow learners receive more time to complete training than the average person. This in itself has significant implications. For instance, the Army Training Requirements and Resources System (ATRRS) is the software program used today to calculate the training path and schedule training for each soldier. It can recalculate the training path should someone fail to graduate due to injury or academic failure, however, all training and predicted assignment dates to subsequent units (training or operational) are predicated on a specified course length. Allowing for faster completion of courses based on differing learning rates implies the need for a major upgrade to ATRRS (or its replacement) and some significant changes to the personnel system that allows real-time

tracking of the status of each individual soldier as they progress through the training system. This will have a significant impact on the scheduling of functional courses that follow IET.

5. The concept of accommodating differing learning styles is inherent in the *Situated Learning* model. While TR 350-70 (App H) contains a section describing multiple methods of presenting instruction that account for learning style differences, only a few of these methods find their way into IET instruction today. According to Kolb and others, exposing students to multiple styles of learning engenders true learning while empowering students to learn when they are instructed in styles that are different from their preferred style. The students become more flexible (or adaptive) in their learning. There are various ways this could be done in IET.

- a. Lectures could be imbedded in scenarios, displayed via hand-held video or through a heads-up display. This could be interactive, with a live facilitator, with all soldiers linked, or it could be recorded information that is available for replay as needed.
- b. Much IET training should be done using the actual equipment (or excellent simulations) that soldiers will find in the OF.
- c. Time for reflection and experimentation must be added to complete the learning cycle.

The first step in accommodating learning styles is the universal testing of soldiers to determine their preferred style. The second step is the universal testing of training cadre to determine their preferred instructional style. The cadre will require training to overcome training style biases and to ensure they understand the importance of teaching to multiple learning styles.

6. Changing training techniques to accommodate different learning styles and learning paces requires a new drill sergeant and instructor training methodology. Instructors and drill sergeants are products of the current system. Changing teaching techniques to accommodate different learning styles within the same group of soldiers is not a subject taught in TRADOC schools today. Therefore, there is a requirement to transform these courses. This is no small task.

- a. Finding the proper balance between sufficient instructor control and soldier control (recall, in *Situated Learning*, greater emphasis is placed on student control of learning) will challenge those developing the courses.
- b. Input will be sought from instructors and drill sergeants who may believe there is nothing wrong with the current system where the instructor or drill sergeant is fully in charge of the presentation of material and the flow of the instruction. The natural result of receiving this input will be a tendency to dissipate the effort at transformation of the instructor and drill sergeant training.

c. It may be difficult for personnel who have been raised in a “task, condition, standard” Army to accept the possibility that multiple acceptable solutions exist to most learning tasks. Designing a program that not only teaches this, but causes the instructors and drill sergeants to embrace the concept may be the biggest challenge of all.

d. During the transition phase from the current Army and IET models to *Situated Learning*, the cadre training courses need to be more robust, perhaps including instruction on learning theories (those in use and *Situated Learning*), learning styles, and techniques instructors and drill sergeants can use to better teach soldiers. It must also engender an understanding of the new training model, and how many of the key learning points will be embedded within each of a series of scenarios. Care must be exercised to ensure the learning is truly embedded, and not just a series of tasks to be performed in sequence being done under the auspices of a scenario.

7. The need for first class equipment and simulations makes it imperative the Army must put the same priority of investment into IET as it does for the operational Army. The training base cannot play second fiddle. The newest equipment should be fielded to the training base prior to, or simultaneous with the fielding to the operational units. Assignment oriented training, where soldiers receive a specific training program based on their first unit of assignment, could be expanded to ensure those soldiers leaving for a modernized unit receive training on the most modern equipment, while those soldiers bound for less modernized units would train on the same equipment as they will find in their unit upon arrival.

8. Concurrent with the need for first class equipment, is the requirement for state-of-the-art simulators to closely replicate the work environment. This requires an investment in infrastructure and training facilities that is unknown in TRADOC today. Assume the FCS will have an imbedded web-linked training capability. How much more realistic would training be if the FCS was then mounted on a movable platform (think F16 flight simulator) to enable the soldiers to experience motion while performing their simulation. Link this simulator to instrumented dismounted soldiers maneuvering through complex terrain and to air and naval weapons-effects simulations and one has a powerful training tool. Included in this requirement is a significant upgrade to the range facilities found in the training base.

9. It is time to bring IET, in particular the BCT portion into the 21st Century.

a. Today, soldiers spend over two weeks learning basic rifle marksmanship. The “task, condition, standard” method of learning has taken something that should be easy, and broken it down into so many component parts that it is now hard. My father taught me how to shoot an M1 Carbine when I was 5 years old. After five minutes of instruction,

2 minutes of which was weapons safety, I was able to consistently hit soft drink cans at 25 yards and beyond. This is not dissimilar to hitting the scaled E-type silhouette on the 25-meter range. Perhaps three days, rather than two weeks would be sufficient to teach the basics of rifle marksmanship. The time saved could be used for more advanced training.

b. Why does the Army continue to train German WWI infiltration tactics (the Night Infiltration Course) designed to penetrate the enemy's trench system? Granted, there are benefits to having soldiers crawl several hundred meters, at night, with explosions in close vicinity and live machine guns firing overhead. Would it not be preferable to have a scenario that more closely replicates a type of fighting the OFS is more likely to encounter, such as combat in complex terrain? City complexes fully instrumented, equipped with sensor controlled non-lethal munitions would provide a proper training environment. OFSs equipped with proper safety equipment and weapons simulators appropriate for their level of training would be the target training audience. Civilians on the battlefield, joint and combined operations (perhaps simulated), with scenarios designed to train full spectrum operations (peace enforcement through combat) provide the *Situated Learning* environment.

All training would be recorded and instrumented to facilitate an AAR. If the soldiers perform operations correctly, they continue with the scenario and will receive an AAR at a later time. Should the soldiers perform a combat operation incorrectly, the weapons systems within the complex engage the soldiers with non-lethal effects (rubber bullets, perhaps). The protective uniforms worn by the soldiers record the weapons' effects and provide medical data (type of wound, fatal, life threatening, etc.) for the AAR and for evacuation purposes. During a peacekeeping scenario, an incorrect action could result in a riot. The soldiers participate in a web-linked and facilitated AAR, and then repeat the scenario until they perform satisfactorily. Values training, Law of Land Warfare, Physical Fitness training, demolitions training, crowd control training etc., can be imbedded in a series of scenarios, the difficulty of each designed with the experience of the IET soldiers in mind. Rather than sitting behind a computer in a first-person shooter type simulation, the OFS is part of the simulation. In essence, all soldiers receive a Combat Training Center (CTC) experience, however, rather than having to travel to the CTC, the CTC is built into the training program, even in IET.

There may be those who feel this is too complex for IET, however, if properly constructed, the scenarios could vary in complexity enabling inexperienced soldiers to

perform satisfactorily within the given scenario. As each soldier's experience increases, scenarios could be repeated, but with added complexity.

c. A precept of *Situated Learning* requires the learning environment simulate as closely as possible the future work environment. For the Army, the work environment for the OF is often in the field. Therefore, IET requires more field time. The only "extended" field time mandated in BCT today is a 72-hour Field Training Exercise (FTX).⁵⁶ OSUT and many AIT soldiers receive a 72 to 120-hour FTX (exceptions require approval of the Commanding General of TRADOC).⁵⁷ Soldiers could learn field craft, Law of Land Warfare, customs and courtesies of the US Army and many other knowledge areas in the field if these are properly imbedded in the training scenario. Today, these tasks are first taught in a classroom environment and occasionally reinforced during other training events. Only the field craft gets trained and reinforced during a FTX.

d. IET must be modified to account for multiple learning styles as noted in implication number 5 above.

10. Situated training scenarios in IET should include joint and combined operations to the maximum extent possible. Assuming future operations will be inherently joint, and often combined, the earlier OFSs are exposed to joint and combined operations, the quicker OFSs will adopt these operations as being the norm. Just as sports teams slowly adapt to new plays, often in a talk-through, walk-through, half-speed, then full-speed drill, so too does the OFS need exposure to the joint and combined team environment. The level of experience of the soldiers being trained will dictate the level of participation.

11. Transformation from the current training model to the situated training model requires a substantial initial investment of resources. As stated earlier, there will be tremendous institutional inertia that will resist changing the IET training model. Current facilities fall short of *Situated Learning* requirements and will have to be upgraded or replaced. This shortfall includes classrooms, barracks, ranges, simulators, training aids, issued equipment, maintenance facilities, and instructor and drill sergeant training among others.

12. Implications for the Army

a. Continuing education in the Army becomes a must, not a luxury. This is more than learning the latest tactics, techniques, and procedures (TTP). Adaptive learners are also life-long learners. Adaptive learners are also well rounded, with broad interests. While specialization will be important in some areas, generalists are normally viewed as being more adaptive than specialists. Therefore, in order to produce more generalists, a broader, general education may provide the solution.

b. Changing the IET training model from one that produces structured learners to one that produces adaptive learners presumes a similar transformation will take place in unit individual and collective training. There is a cost associated with this transformation also. Doctrinal manuals and regulations, starting with AR 350-1 will require major revisions. Simulations and facilities will require significant upgrades. Professional education courses for NCOs and officers need to incorporate instruction on *Situated Learning* and *Learning Style Preferences* as part of the curriculum to better prepare leaders to fulfill their role as expert facilitators.

c. As noted above, IET must be given equal footing with the operational Army regarding training funding, simulations, equipment, and manning to enable proper execution of IET that will produce adaptive learners for the OF.

d. Impacts on mobilization and reserve component training must be examined when analyzing changes to the IET training model.

SITUATED LEARNING AND COHORT

The key theme throughout this paper has been IET requires transformation in order to produce adaptive learners for the OF. As noted in the preceding paragraphs, *Situated Learning* provides the strongest model for transforming IET to produce adaptive learners. Also noted, given the current resource situation in TRADOC, there are significant costs associated with this transformation. Should the Army change from an individual replacement manning system, to one that fills brigade-sized UAs as a Cohort, adopting a Cohort model for IET can significantly mitigate several of the above implications. These areas of mitigation are addressed below using the fundamental precepts of *Situated Learning*.

One possible scenario for filling the OF UA could start with the UA, as its final mission, deploying its personnel and equipment to the IET training site. Upon arrival, the departing soldiers would be mustered out of the Army. The remaining cadre would undergo refresher training in presentation techniques and facilitation to enable them to conduct training in a *Situated Learning* model, while accounting for different learning styles. The UA cadre would meet the new soldiers upon arrival from the Military Entrance Processing Station (MEPS), in-process the new soldiers and begin training. The new soldiers would undergo training on the actual equipment they will use to perform missions upon completion of the UA training phase. The use of UA equipment, with training conducted by their actual unit cadre, most closely approximates the work environment, the first precept of *Situated Learning*.

The second precept, situationally acquired knowledge transfers only to similar situations, also is better met with Cohort training. During current IET, the teams with whom a soldier trains will change upon departure from the training base. The individual or team reaction to a training scenario within IET will be very different from the reaction in an operational unit, where the soldier must function as a member of a different team with a different chain of command. Cohort IET is done with the actual chain of command and a stable developing team. Knowledge learned in training scenarios is directly transferable to later operations. This is especially true of scenarios where teamwork plays a key role in developing the solution.

Training with stable teams and the UA chain of command in various scenarios allows each soldier to understand how the team reacts and thinks. Through the use of multiple scenarios, with increasing levels of difficulty, the IET soldier can develop ways of thinking, perceiving and problem solving that transcends the mere knowledge acquired during the training. Through an ever more complex spiral approach to learning (à la Kolb), the individual soldiers and teams can develop methods of operating that become like a sixth sense. This may be limited during the IET phase, however, the foundation for this ability will certainly be formed during IET, to be fully developed during the next phase of UA training.

The final precept where Cohort most closely approximates the work environment is learning taking place in a complex social environment. From the initial formation of the unit, all soldiers will live and train within the complex social environment that will later deploy together on operational assignments. This is also known as participation in a community of practice, where the community is the same in IET as in the operational unit. As such, this community provides the greatest probability that transfer of learning will occur. Cohort provides that community, the current IET model doesn't.

Today's IET places soldiers into multiple complex social environments, which hinders the soldier's development. An IET soldier today on a BCT-AIT track, meets and forms informal teams at the MEPS, at the reception battalion, at the BCT company and at the AIT company. The soldier then ships to an operational unit (assuming no further functional training) where the process of team building begins once again. The soldier becomes adept at forming teams, but is a neophyte at performing as a member of a well-trained team. Adoption of a *Situated Learning* model for IET, without the Cohort manning model does little to mitigate this shortcoming. The current training model cannot replicate the synergy of soldiers forming durable teams from the onset of their Army training. This synergy that only Cohort gives, will enhance the ability to produce a better-trained OFS in less time.

Below is a listing of further examples where the Cohort method of IET mitigates the implications caused by adopting the *Situated Learning* model.

a. The IET soldiers would train on their actual equipment. This eliminates the requirement for additional sets of equipment in the training base. As such, more money will be available to fund improvements to ranges, simulations and other facilities (improvements that will still be required under any form of *Situated Learning*).

b. The IET soldiers train on the actual equipment they will use in their unit, therefore, there is never a mismatch between the equipment on which they train in IET and the equipment they use upon arrival in their first unit.

c. Soldiers train on and learn to maintain their actual equipment, not a piece of gear they turn in prior to graduation. "Ownership" generally yields better care (think of the care given to a rental car, compared to the family owned automobile). The knowledge that soldiers will have to deploy with and perform actual missions with their equipment should provide the IET soldiers added motivation to learn to properly maintain and employ the equipment.

d. Having the UA cadre perform the training minimizes the need for a separate IET cadre of drill sergeants, instructors and other cadre. This would eliminate large numbers of Table of Distribution and Allowance (TDA) slots, freeing personnel to fill slots in OF units. This is an important consideration as the possibility of tiered readiness may generate a need for a greater number of brigade-sized elements than exist in today's Army. Minimizing the number of TDA training cadre can help fill potential unit shortfalls without requiring large increases in Army end strength.

e. Having the UA cadre perform the training minimizes the institutional inertia within TRADOC generated when converting instructors and drill sergeants from the current training model to the *Situated Learning* model.

f. Having UA cadre leading training smoothes the transition to a more modern IET, one where situated training can occur within a contemporary operating environment to include joint and combined operations. The UA cadre will not feel constrained by the current POI and set of TSPs. Training can be METL based, with certain regulatory requirements (e.g., weapons qualifications, passing the physical training test, etc.) incorporated into the training.

f. The Cohort IET portion of the UA life cycle will be budgeted as any normal training event for an operational unit. This eliminates the current situation where training units are continually under-resourced in order to meet the needs of the operational units.

g. Upon completion of IET, the unit deploys from the training site, to their home base. This can be conducted as a scenario that trains the unit to deploy anywhere within 96 hours.

This also helps develop a deployable mindset in the IET soldiers, a mindset that will be a constant in their life, so long as they are in the Army.

The above paragraphs could be seen as indicating there are no disadvantages to adopting a Cohort method of IET. Clearly, that is not the case. Opponents of Cohort will note the success of Cohort is directly tied to the quality of the cadre in the unit. Weak leadership results in weak Cohort units. Therefore, the possibility of having some very good units, mixed with some very bad units may be higher than it is today. Also, the potential for higher IET attrition is a factor that must be addressed. The training cadre will have to live with their product throughout the soldier's enlistment. Therefore, the likelihood of the cadre eliminating those they feel will not make a good soldier is high. Attrition in IET today fluctuates between 12 and 14%. First term attrition (during the first three years of enlistment) in the Army is over 33% and has been as high as 38%. While the possibility exists for an increase in attrition, a change in training models might have the opposite effect. Regardless, there will certainly be some attrition. Therefore, newly formed UAs will need to be filled to a certain percentage above 100% (to be determined through a future study), ensuring sufficient soldiers make up each initial Cohort to account for future losses. Additionally, a UA may consist of maneuver, maneuver support and maneuver sustainment personnel. A Cohort method of training for the UA has to account for and synchronize the training of these three categories of soldiers, preferably at the same location. Adopting a Cohort model of manning and IET has implications should a crisis develop that requires total mobilization. Finally, Cohort provides an excellent method of training IET soldiers to man Cohort-filled UAs in the active component, however, the requirement exists for performing IET to meet the manning requirements of the Reserve Components. Therefore, if Cohort IET is adopted, some method must be developed to incorporate Reserve Component soldiers into this training.

As noted earlier in this paper, the concept of tiered readiness and filling OF UAs as a Cohort is being given serious consideration in the development of the OF. The concept of transforming IET via a Cohort model is inextricably linked. Should this manning and readiness system be adopted, transition to a Cohort system for IET, where training is conducted using the *Situated Learning Model*, may be the best solution to transforming IET to produce the OF Soldier. When compared to a transformed IET, with separate IET cadre and additional sets of training equipment, the Cohort model will produce the OFS "better, faster and more affordably."

CONCLUSIONS

Army Transformation is designed to bring about a more effective, efficient, lethal, full spectrum force. The first OF battalion is scheduled to join the force in 2008, with the first brigade scheduled for 2010. The success of the Objective Force is directly tied to the key system in the “system of systems,” the soldier. Today’s IET produces structured learners who function well in a legacy force, however these soldiers will not possess the knowledge nor wisdom needed for success in the OF. To ensure soldiers meet the needs of the OF, the Army must transform its training. In particular, IET must be transformed through a more thorough integration of adult learning theory that speeds the transition from today’s structured learner to tomorrow’s adaptive learner. While many learning theories (Maltzman, DeBono, and Bruner among others) offer elements that can be used to improve IET to produce adaptive learners, the learning model of choice to make this transformation is *Situated Learning*. Current IET is “one size fits all” with little flexibility for soldiers who have learning preferences that are not optimized for performance-oriented, hands-on training. The transition to adaptive learner must also be enhanced through the incorporation of teaching methods that account for different learning preferences. The adoption of the *Situated Learning Model* incorporates a training design that accounts for different learning styles and paces. *Situated Learning* provides the best options for developing the OFS as an adaptive learner, through the combination of content, context, community of practice and participation. Furthermore, adopting a Cohort method of conducting IET offers even greater efficiencies and effectiveness, should the Army choose Cohort as the manning option for the Objective Force.

RECOMMENDATIONS

1. TRADOC initiate a study of the costs and benefits of transforming IET through the application of adult learning theories, in particular, *Situated Learning*.
2. TRADOC incorporate the concept of adjusting teaching methods to accommodate different learning styles in future professional education courses.
3. TRADOC initiate a study to determine the feasibility of transitioning to Cohort IET in support of a Cohort manning system for the OF Units of Action. Included in this study is a need to examine methods of conducting IET for Reserve Component personnel.
4. TRADOC initiate a study to determine the costs associated with upgrading all training facilities to enable training IET for the OFS with --
 - a. TRADOC assigned equipment and cadre (should Cohort not be adopted).
 - b. UA assigned equipment and cadre (to support the Cohort concept).

5. TRADOC work with the Army G1 to develop a replacement system for ATRRS that can efficiently track individual soldiers as they progress through an IET that allows for individual variations in training path due to accelerated learning abilities. (This is primarily needed should Cohort not be adopted.)

6. TRADOC and the Army initiate a study to determine implications on mobilization resulting from adopting Cohort manning of UAs coupled with Cohort IET.

Word Count=15220

ENDNOTES

¹ The American Heritage Dictionary of the English Language, ed. William Morris (Boston: Houghton Mifflin, 1975), 14

² Ibid.

³ Office of the Secretary of the Army, office of the Chief of Staff, "The Army Vision, Soldiers on Point for the Nation. Persuasive in Peace, Invincible in War." (Washington, D.C., October, 1999).

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.

⁷ Eric K. Shinseki, "The Objective Force White Paper," available from www.army.mil/features/WhitePaper; Internet; accessed 8 August 2002, iv.

⁸ Linda H. Lewis and Carol J. Williams, "Experiential Learning: Past and Present," in New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella (San Francisco: Jossey-Bass Publishers, Number 62, Summer 1994), 14.

⁹ Laurie J. Fitzgerald, "The CHAOS Thinksite," available from <http://www.orgmind.com/chaos/whatis.html>; Internet; accessed 23 FEB 2003.

¹⁰ Ibid.

¹¹ Laurie J. Fitzgerald, "Chaordic Systems Property Chart," available from <http://www.orgmind.com/chaos/propchart.html>; Internet; accessed 23 FEB 2003.

¹² Ibid.

¹³ Carl von Clausewitz, On War, ed. and trans. Michael Howard and Peter Paret (Princeton: Princeton University Press, 1976), 119-121.

¹⁴ Department of the Army, Enlisted Initial Entry Training (IET) Policies and Administration, TRADOC Regulation 350-6, (FT Monroe, VA: U.S. Department of the Army, 3 July 2001), 5-7.

¹⁵ Department of the Army, Army Training, Army Regulation 350-1, (Washington, D.C.: U.S. Department of the Army, August, 1983), 1.

¹⁶ Ibid.

¹⁷ Ibid., Ch 5.

¹⁸ Ibid., 1-3.

- ¹⁹ Ibid., 1-4.
- ²⁰ Department of the Army, Battle Focused Training, Field Manual 25-101, (Washington, D.C.: U.S. Department of the Army, September, 1990), CH 4, available from <http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/25-101/fm251_5.htm> - REF21h2>; Internet; accessed 23 Feb 2003.
- ²¹ Ibid.
- ²² Ibid.
- ²³ Sharan B. Merriam and Rosemary Caffarella. Learning in Adulthood, A Comprehensive Guide (San Francisco: Jossey-Bass, 1991), 138; quoted in Mark K. Smith, "Learning theory," *The Encyclopedia Of Informal Education*," available from: <www.infed.org/biblio/b-learn.htm>; Internet; accessed 9 March 2003.
- ²⁴ Curtis Kelly, The concepts of behaviorist, humanist and experiential learning theories have been paraphrased from "David Kolb, The Theory of Experiential Learning and ESL," available from <<http://iteslj.org/Articles/Kelly-Experiential/>>; Internet; accessed 9 March 2003.
- ²⁵ "Operant Conditioning (B.F. Skinner)," available from <<http://tip.psychology.org/skinner.html>>; Internet; accessed 8 March 2003.
- ²⁶ "Criterion Referenced Instruction (R. Mager)," available from <<http://tip.psychology.org/mager.html>>; Internet; accessed 8 March 2003.
- ²⁷ Department of the Army, Systems Approach to Training Management, Processes, and Products, TRADOC Regulation 350-70, (FT Monroe, VA: U.S. Department of the Army, 9 March 1999), Ch IV, VI.
- ²⁸ Ibid., Ch IV, VI, App H.
- ²⁹ TR 350-6, 84 – 85.
- ³⁰ "Experiential Learning (C. Rogers)," available from <<http://tip.psychology.org/rogers.html>>; Internet; accessed 9 March 2003.
- ³¹ TR 350-70, App H.
- ³² "Experiential Learning (C. Rogers)."
- ³³ David Stein, "Situating Learning in Adult Education. ERIC Digest No. 195," available from <<http://www.ericfacility.net/ericdigests/ed418250.html>>; Internet; accessed 9 March 2003.
- ³⁴ Rosemary S. Caffarella and Bruce G. Barnett, "Characteristics of Adult Learners and Foundations of Experiential Learning," in New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella (San Francisco: Jossey-Bass Publishers, Number 62, Summer 1994), 36, 37.

³⁵ B. Lankard, "New Ways Of Learning In The Workplace. ERIC Digest No. 161." (Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, 1995. (ED 385 778)); as quoted in David Stein, "Situated Learning in Adult Education. ERIC Digest No. 195," available from <<http://www.ericfacility.net/ericdigests/ed418250.html>>; Internet; accessed 9 March 2003.

³⁶ Ibid.

³⁷ Ronald R. Sims and Serbrenia J. Sims, "Learning Enhancement in Higher Education," in The Importance of Learning Styles: Understanding the Implications for Learning, Course Design, and Education, ed. Ronald R. Sims and Serbrenia J. Sims (Westport, Connecticut: Greenwood Press, 1995), 7.

³⁸ Mark K. Smith, "'David A. Kolb on Experiential Learning,' *The Encyclopedia of Informal Education*," available from <<http://www.infed.org/b-explrn.htm>>; Internet; accessed 9 March 2003.

³⁹ Dennis W. Mills, "Applying What We Know, Student Learning Styles," available from <<http://www.csrnet.org/csrnet/articles/student-learning-styles.html>>; Internet; accessed 9 March 2003.

⁴⁰ "Learning Styles: A Multiple Intelligences Approach," available from <http://pss.uvm.edu/pss162/learning_styles.html>; Internet; accessed 9 March 2003.

⁴¹ David A. Kolb, Experiential Learning: Experience as The Source of Learning and Development (Englewood Cliffs: Prentice Hall PTR, 1984), 66.

⁴² "Originality (I. Maltzman)," available from <<http://tip.psychology.org/maltzman.html>>; Internet; accessed 8 March 2003.

⁴³ "Originality (I. Maltzman)," available from <<http://tip.psychology.org/maltzman.html>>; Internet; accessed 8 March 2003.

⁴⁴ "Lateral Thinking (DeBono)," available from <<http://tip.psychology.org/debono.html>>; Internet; accessed 8 March 2003.

⁴⁵ "Constructivist Theory (J. Bruner)," available from <<http://tip.psychology.org/bruner.html>>; Internet; accessed 8 March 2003.

⁴⁶ Linda H. Lewis and Carol J. Williams, "Experiential Learning: Past and Present," in New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella (San Francisco: Jossey-Bass Publishers, Number 62, Summer 1994), 6,7.

⁴⁷ Ibid., 10, 11.

⁴⁸ Ibid., 11.

⁴⁹ David Stein, "Situated Learning in Adult Education. ERIC Digest No. 195," available from <<http://www.ericfacility.net/ericdigests/ed418250.html>>; Internet; accessed 23 February 2003.

⁵⁰ Ibid.

⁵¹ Ibid.

⁵² Ibid.

⁵³ Ibid.

⁵⁴ Ibid.

⁵⁵ Ibid.

⁵⁶ TR 350-6, 14.

⁵⁷ Ibid., 52.

BIBLIOGRAPHY

- American Association for Adult and Continuing Education (AAACE), the. Handbook of Adult and Continuing Education, New Ed. Ed. Arthur L. Wilson and Elisabeth R. Hayes. San Francisco: Jossey-Bass, 2000.
- American Heritage Dictionary of the English Language, The, ed. William Morris. Boston: Houghton Mifflin, 1975.
- Barnett, Bruce G. and Patty Lee. "Assessment Processes and Outcomes: Building a Portfolio." In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 55-62. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Bassett, Diane S. and Lewis Jackson. "Applying the Model to a Variety of Adult Learning Situations," In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 73-86. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Baumgartner, Lisa M. "An Update on Transformational Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 15-24. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Bloom, Benjamin. "The Taxonomy of Educational Objectives." Available from: <<http://www.ittheory.com/bloom1.htm>>; Accessed 23 February 2003.
- Boyatzis, Richard E. "Cornerstones of Change: Building the Path for Self-Directed Learning," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 50-94. San Francisco: Jossey-Bass, 1995.
- _____. "Gatekeepers of the Enterprise: Assessing Faculty Intent and the Student Outcome," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 120-134. San Francisco: Jossey-Bass, 1995.
- Boyatzis, Richard E., Ann Baker, David Leonard, Kenneth Rhee, and Lorraine Thompson. "Will it Make a Difference?: Assessing a Value-Added, Outcome-Oriented, Competency-Based Professional Program," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 167-204. San Francisco: Jossey-Bass, 1995.
- Boyatzis, Richard E., Anne Renio-McKee, and Lorraine Thompson. "Past Accomplishments: Establishing the Impact and Baseline of Earlier Programs," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 95-119. San Francisco: Jossey-Bass, 1995.
- Boyatzis, Richard E., Scott S. Cowen and David A. Kolb. "Conclusion: What if Learning Were the Purpose of Education?," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 228-248. San Francisco: Jossey-Bass, 1995.

- _____. "Introduction: Taking the Path Toward Learning," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 1-14. San Francisco: Jossey-Bass, 1995.
- _____. "Management of Knowledge: Redesigning the Weatherhead MBA Program," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 32-49. San Francisco: Jossey-Bass, 1995.
- _____. "Reaction from the Stakeholders: The Trials and Tribulations of Implementing a New Program," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 205-227. San Francisco: Jossey-Bass, 1995.
- Brookfield, Stephen D. Understanding and Facilitating Adult Learning. San Francisco: Jossey-Bass, 1986.
- Caffarella, Rosemary S. and Bruce G. Barnett. "Characteristics of Adult Learners and Foundations of Experiential Learning," In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 29-42. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Case, Susan S. and Lorraine Thompson. "Gender Differences in Student Development: Examining Life Stories, Career Histories, and Learning Plans," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 135-166. San Francisco: Jossey-Bass, 1995.
- Clark, M. Carolyn. "Off the beaten Path: Some Creative Approaches to Adult Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 83-92. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Clausewitz, Carl von. On War, ed. and trans. Michael Howard and Peter Paret. Princeton: Princeton University Press, 1976.
- "Constructivist Theory (J. Bruner)." Available from <<http://tip.psychology.org/bruner.html>>; Internet. Accessed 8 March 2003.
- Cowen, Scott S. "Lessons Learned: Guiding Strategic Change in Higher Education," in Innovation in Professional Education, by Richard E. Boyatzis, Scott S. Cowen, David A. Kolb and Associates, 15-31. San Francisco: Jossey-Bass, 1995.
- "Criterion Referenced Instruction (R. Mager)." Available from <<http://tip.psychology.org/mager.html>>; Internet. Accessed 8 March 2003.
- Dirkx, John M. "The Power of Feelings: Emotion, Imagination, and the Construction of Meaning in Adult Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 63-72. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- "Experiential Learning (C. Rogers)." Available from <<http://tip.psychology.org/rogers.html>>; Internet. Accessed 9 March 2003.

- Farson, Richard and Ralph Keyes. "The Failure-Tolerant Leader." Harvard Business Review, August 2002, 64-71.
- Fitzgerald, Laurie J. "Chaordic Systems Property Chart," available from <<http://www.orgmind.com/chaos/propchart.html>>; Internet. Accessed 23 FEB 2003.
- _____. "The CHAOS Thinksite," available from <<http://www.orgmind.com/chaos/whatis.html>>; Internet. Accessed 23 FEB 2003.
- Hansman, Catherine A. "Context-Based Adult Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 43-52. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Hayes, Elisabeth R. "A new Look at Women's Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 35-42. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Heimlich, Joe E. and Emmalou Norland. Developing Teaching Style in Adult Education. San Francisco: Jossey-Bass, 1994.
- Hill, Lilian H. "The Brain and Consciousness: Sources of Information for Understanding Adult Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 73-82. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Jackson, Lewis and Doug MacIsaac. "Introduction to a New Approach to Experiential Learning," In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 17-28. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Jackson, Lewis and Rosemary S. Caffarella. "Implementation Issues and Future Research Directions." In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 87-92. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Kanter, Rosabeth Moss. The Change Masters: Innovation & Entrepreneurship in the American Corporation. New York: Simon and Schuster, 1983.
- Kelly, Curtis. The concepts of behaviorist, humanist and experiential learning theories have been paraphrased from "David Kolb, The Theory of Experiential Learning and ESL," available from <<http://iteslj.org/Articles/Kelly-Experiential/>>; Internet. Accessed 9 March 2003.
- Kilgore, Deborah W. "Critical and Postmodern Perspectives on Adult Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 3-14. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Kolb, David A. Experiential Learning: Experience as The Source of Learning and Development. Englewood Cliffs: Prentice Hall, 1984.

- Lankard, B. "New Ways Of Learning In The Workplace. ERIC Digest No. 161." Columbus: ERIC Clearinghouse on Adult, Career, and Vocational Education, 1995. (ED 385 778); as quoted in David Stein, "Situating Learning in Adult Education. ERIC Digest No. 195." Available from <<http://www.ericfacility.net/ericdigests/ed418250.html>>; Internet. Accessed 9 March 2003.
- "Lateral Thinking (DeBono)." Available from <<http://tip.psychology.org/debono.html>>; Internet. Accessed 8 March 2003.
- "Learning Styles: A Multiple Intelligences Approach." Available from <http://pss.uvm.edu/pss162/learning_styles.html>; Internet. Accessed 9 March 2003.
- Lee, Patty and Rosemary S. Caffarella. "Methods and Techniques for Engaging Learners in Experiential Learning Activities," In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 43-54. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Lewis, Linda H. and Carol J. Williams. "Experiential Learning, Past and Present." In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 5-16. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- MacIsaac, Doug and Lewis Jackson. "Assessment Processes and Outcomes: Portfolio Construction," In New Directions for Adult and Continuing Education, Experiential Learning: A New Approach, ed. Lewis Jackson, Rosemary S. Caffarella, 63-72. San Francisco: Jossey-Bass, Number 62, Summer 1994.
- Marsick, Victoria J. and Karen E. Watkins. "Informal and Incidental Learning," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 25-34. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Merriam, Sharan B. "Andragogy and Self-Directed Learning: Pillars of Adult Learning Theory," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 3-14. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- _____. "Something Old, Something New: Adult Learning Theory for the Twenty-First Century," in New Directions for Adult and Continuing Education, The New Update on Adult Learning Theory, ed. Sharan B. Merriam, 93-96. San Francisco: Jossey-Bass, Number 89, Spring 2001.
- Merriam, Sharan B. and Rosemary Caffarella. Learning in Adulthood, A Comprehensive Guide San Francisco: Jossey-Bass 1991, 138. Quoted in Mark K. Smith, "Learning theory,' *The Encyclopedia of Informal Education*." Available from: <www.infed.org/biblio/b-learn.htm>; Internet. Accessed 9 March 2003.
- Mills, Dennis W. "Applying What We Know, Student Learning Styles." Available from <<http://www.csrnet.org/csrnet/articles/student-learning-styles.html>>; Internet. Accessed 9 March 2003.

"Operant Conditioning (B.F. Skinner)." Available from <<http://tip.psychology.org/skinner.html>>; Internet. Accessed 8 March 2003.

"Originality (I. Maltzman)." Available from <<http://tip.psychology.org/maltzman.html>>; Internet. Accessed 8 March 2003.

Reigeluth, C. "Elaboration Theory." Available from <http://carbon.cudenver.edu/~mryder/itc_data/idmodels.html>; Internet. Accessed 23 February 2003.

Shinseki, Eric K. "The Objective Force White Paper," available from <www.army.mil/features/WhitePaper>; Internet. Accessed 8 August 2002.

Sims, Ronald R. and Serbrenia J. Sims. "Learning Enhancement in Higher Education." In The Importance of Learning Styles: Understanding the Implications for Learning, Course Design, and Education, ed. Ronald R. Sims and Serbrenia J. Sims, 1-24. Westport, Connecticut: Greenwood Press, 1995.

Smith, Mark K. "'David A. Kolb on Experiential Learning,' *The Encyclopedia of Informal Education*." Available from <<http://www.infed.org/b-explrn.htm>>; Internet. Accessed 9 March 2003.

_____. "'Learning theory,' *The Encyclopedia of Informal Education*." Available from: <www.infed.org/biblio/b-learn.htm>; Internet. Accessed 9 March 2003.

Stein, David. "Situated Learning in Adult Education. ERIC Digest No. 195." Available from <<http://www.ericfacility.net/ericdigests/ed418250.html>>; Internet. Accessed 9 March 2003.

U.S. Department of the Army. "Concepts for the Objective Force" U.S. Army White Paper. Available from <<http://www.army.mil/features/WhitePaper/ObjectiveForceWhitePaper.pdf>>; Internet. Accessed 8 August 2002.

_____. Army Training. Army Regulation 350-1. Washington, D.C.: U.S. Department of the Army, 1 August 1983.

_____. Battle Focused Training, Field Manual 25-101. Washington, D.C.: U.S. Department of the Army, September, 1990, available from <http://www.adtdl.army.mil/cgi-bin/atdl.dll/fm/25-101/fm251_5.htm> - REF21h2>; Internet. Accessed 23 Feb 2003.

_____. Enlisted Initial Entry Training (IET) Policies and Administration, TRADOC Regulation 350-6, FT Monroe, VA: U.S. Department of the Army, 3 July 2001.

_____. Systems Approach to Training Management, Processes, and Products, TRADOC Regulation 350-70, FT Monroe, VA: U.S. Department of the Army, 9 March 1999.

_____. The Army Vision, Soldiers on Point for the Nation, Persuasive in Peace, Invincible in War. Statement issued by the Offices of the Secretary of the Army and the Chief of Staff of the Army, October 1999. Available from <<http://www.army.mil/vision/TheArmyVision.PDF>>; Internet. Accessed 8 August 2002.

_____. Training the Force, Field Manual 25-100. Washington, D.C.: U.S. Department of the Army, November, 1988.

Vance, Mike and Diane Deacon. Think out of the Box. Franklin Lakes, NJ: Career Press, 1995.